HAINBUCH

Installation manual EN

Clamping devices

SPANNTOP [nova] combi pull-back
SPANNTOP [nova] combi deadlength
SPANNTOP [nova] modular

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»Translation of original installation manual«

1 General

1.1 Information about this manual

This manual enables safe and efficient handling of the clamping device.

The manual is a component of the clamping device and must be kept in the immediate vicinity of the clamping device where it is accessible for personnel at all times. Personnel must have carefully read and understood this manual prior to starting all tasks. The basic prerequisite for safe work is compliance with all the safety instructions and handling instructions in this manual.

Illustrations in this manual are provided for a basic understanding and may deviate from the actual model of the clamping device.

It is assumed that the reader is familiar with standard procedures, such as cleaning the mounting surfaces.

1.2 Description of variants

Three variants of the SPANNTOP [nova] clamping device are presented in this manual:

- SPANNTOP [nova] combi pull-back
- SPANNTOP [nova] combi deadlength
- SPANNTOP [nova] modular

If the variants differ in structure, installation, disassembling and maintenance or fault correction, they will be described separately.

Based on the headers, sections and action steps can always be assigned to a specific variant.

Starting with weight 15 kg eye bolts must be used to transport the clamping device.

Usual approaches like a cleaning of the areas for screwing are presupposed to be familiar

1.3 Explanation of symbols

Safety instructions

Safety instructions are indicated by symbols in this operating manual. The safety instructions are introduced by signal words that express the scope of the hazard.

The safety instructions must be strictly adhered to. You must act prudently to prevent accidents, personal injury, and material damage.

DANGER

… indicates an imminent dangerous situation than can result in death or serious injury if it is not avoided.

WARNING

… indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.

CAUTION

… indicates a possible dangerous situation that can result in minor or light injury if it es not avoided.

NOTE

… indicates a possible dangerous situation that can result in material damage if it is not avoided.

Tips and recommendations

… indicates useful tips and recommendations, as well as information for efficient and trouble-free operation.

1.4 Limitations of liability

All information and instructions in this operating manual have been provided under due consideration of applicable standards and regulations, the current state of technology, as well as our many years of experience.

The manufacturer assumes no liability for damage due to:

- Failure to follow the instructions in the manual
- Non-intended use
- Deployment of untrained personnel
- Unauthorized conversions
- Technical changes
- Use of non-approved spare parts

The actual scope of delivery can vary from the explanations and graphic representations provided in this manual in the case of special versions, if supplemental order options are desired, or on the basis of the latest technical changes.

The agreed obligations in the delivery contract, the general terms and conditions, as well as delivery condi-

tions of the manufacturer, and the statutory regulations valid at the time the contract was concluded, apply.

CAUTION!

Our clamping devices are balanced with balance quality G = 4, in one level n = 1.

The data on the rotation balance refers to rotationally symmetrical work pieces.

The clamping of not rotationally symmetrical work pieces may not be clamped and/or only be clamped after consultation with the manufacturer.

Balancing bolts and balancing weights at the clamping devices may not be removed / disassembled!

1.5 Max. RPM

CAUTION!

The maximum permissible speed is marked on the product.

By the combination of a clamping device and an add on clamping element a reduction of the maximum permissible speed may be necessary.

- Of all RPMs of the groups specified, the **lowest given RPM** must always be used.

Note that the clamping force is influenced by the centrifugal force of the clamping elements.

- If necessary, adjust the machining force!

1.6 Copyright

This manual is protected by copyright and is provided exclusively for internal purposes.

Delivery of the operating manual to third parties, duplication in any form – including excerpts – as well as exploitation and/or communication of the content, are not permitted [except for internal use] without written approval from the manufacturer.

Actions to the contrary make damage compensation mandatory. We reserve the right to enforce additional claims.

1.7 Scope of delivery

All tools and accessories that are not included in the scope of delivery are marked as optional.

In scope of delivery of the clamping device:

- 1 Spindle flange
- 1 Clamping unit
- 1 Base end-stop

Optionally the scope of delivery of the clamping device includes:

- 2 Eye bolts
- 1 Threaded adapter

1.8 Spare parts

WARNING!

Safety risk if the wrong spare parts are used!

Incorrect or defective spare parts can cause damage, malfunction, or total failure; they can also impair safety.

- Only use manufacturer's original spare parts.

Only purchase spare parts from authorized dealers or direct from the manufacturer. Addresses are in the appendix.

1.9 Warranty terms

The warranty terms are included in the manufacturer's terms and conditions.

1.10 CFK

In case of visible damage or visible wear of the carbon parts:

- Further processing only after consultation with HAINBUCH.

2 Safety

This section provides an overview o fall the important safety aspects for optimal protection of personnel, as well as for safe and trouble-free operation.

2.1 Responsibility of the customer

The device is used in industrial applications. Consequently the owner of the device is subject to legal industrial safety obligations.

In addition to the safety instruction in this manual, generally valid safety and accident protection guidelines, and environmental protection guidelines as well as the machines' manual must be adhered to and complied with for the area of implementation of the device.

Note in particular that the status scans of the machine must be adjusted to the respective clamping device.

DANGER!

Risk of injury due to thrown out parts!

Incorrect machine settings may lead to the throwing out of parts.

- The status scans the machine must be set to the respective clamping device.
- Regularly check the status scans of the machine, see chapter »Maintenance Schedule«. If the end position can not be reached the jaw module may no longer be used.
- Observe the operating instructions of the machine.

2.2 Personnel requirements

WARNING!

Danger of injury due to insufficient qualification!

Improper handling of the clamping device can cause serious injury or material damage.

- Only have activities performed by personnel who are qualified to perform these activities.

The following qualifications are cited in the operating manual for the various activity areas.

- **Specialized personnel**
  are personnel who due to their specialized training, skills, and experience, as well as knowledge of the applicable regulations, are capable of executing the tasks assigned to them and of recognizing and avoiding possible hazards on their own.
- **Hydraulic specialist**
  The hydraulic specialist has been trained for the particular task area in which he is active and is familiar with the relevant standards and regulations. Due to his specialized training and experience the hydraulic specialist can perform tasks on hydraulic equipment and recognize and avoid possible dangers on his own.
- **Electric specialist**
  The electric specialist has been trained for the particular task area in which he is active and is familiar with the relevant standards and regulations.
  Due to his specialized training and experience the electric specialist can perform tasks on electric equipment and recognize and avoid possible dangers on his own.

Only persons from whom it can be expected that they reliably execute their work are considered as personnel. Persons whose capability to react is impaired, for instance through drugs, alcohol, or medication, are not approved.

- Comply with age-specific and job-specific regulations that are applicable at the installation site when selecting personnel.

2.3 Intended use

The clamping device is designed for installation in a machine tool according to CE compliant. Within the machine tool the clamping device is designed exclusively as a through-bore chuck for bar work and / or as an end-stop chuck for chuck work.

The clamping device should only be mounted, operated, maintained, and cleaned by instructed, specialized personnel.

Intended use also includes compliance with all the instructions in this manual.

The clamping device is to be used for the case of application contractually agreed between the producer/deliverer and the user, as well as such cases of application described in the product description which are also in accordance with the technical values.

The safe function of the clamping device is, as far as it can be foreseen, guaranteed when it is used for the intended purpose in accordance with the appropriate safety regulations.

Any use that extends beyond the intended use, or any other use of the clamping device is considered to be misuse and can cause dangerous situations.

WARNING!

Danger due to misuse!

Misuse of the clamping device can cause dangerous situations.

Particularly refrain from the following uses of the clamping device:

- Use in machines other than machine tools.
- Use in machine tools with technical data other than that specified on the clamping device.

Claims of any type due to damage arising from non-intended use are excluded.

Unintended and improper use of the Power Chuck is for example

- If workpieces are not clamped properly
- If safety regulations are disregarded and persons are working at the clamping device without additional protective devices e.g. for machining.
- If the clamping device is used for machines or tools for which it is not intended.

2.4 Personal protective equipment

Wearing of personal protective equipment is required to minimize health hazards when working with the device.

- Always wear the protective equipment necessary for the respective task when working with the device.
- Follow the instructions that have been posted in the work area.

Always wear

For all tasks always wear:

Protective work clothing

is tight-fitting work clothing with low resistance to tearing, with tight sleeves, and without projecting parts. It is primarily used to protect against entanglement by moving machine parts.

Do not wear rings, chains, or other jewelry.

Safety footwear

for protection against heavy falling parts and slipping on slippery substrates.

For special tasks wear

Special protective equipment is required when executing special tasks. Separate reference is made to this equipment in the specific sections of this manual. This special protective equipment is explained below:

Hard hat

to protect against falling and flying parts and materials.

Protective goggles

to protect eyes from flying parts and liquid splashes.

Protective gloves

to protect hands from friction, abrasion, puncture wounds, or deeper injuries, as well as from contact with hot surfaces.

2.5 Special dangers

In the following section residual risks are cited that occur due to installation of the clamping device in a machine tool. In each case the residual risks that have been determined based on a risk analysis of the machine must be specified by the customer.

- Follow the safety instructions listed here and the warnings in the other sections of this manual to reduce health hazards and to avoid dangerous situations.

Horizontal / lying parts

WARNING!

Danger of injury due to horizontal parts!

Before transporting the clamping device in horizontal condition:

- Put the clamping device on a non-slip pad
- Screw in the eye bolts

Suspended loads

WARNING!

Life-threatening danger due to suspended loads!

Some clamping devices must be lifted with a crane. When lifting the clamping device there is a life-threatening hazard due to falling parts or parts swinging out of control.

- Never step under suspended loads.
- Comply with the instructions concerning the intended attachment points. Ensure that the sling gear is securely seated!
- Do not attach lifting gear in projecting components.
- Only use approved hoists and sling gear with sufficient bearing capacity.
- Do not use rope and belts that are torn or frayed.

Moving parts

WARNING!

Danger of injury due to moving parts!

Rotating parts of the clamping device can cause serious injuries.

- Do not reach into moving parts or handle moving parts during operation.
- Note the gap dimensions of moving parts.
- Do not open covers when the device is in operation.
- Be aware of afterrun time:
  Prior to opening the covers ensure that all parts have come to a standstill.
- Wear tight-fitting protective work clothing in the danger zone.

Wrong clamping of the work piece

WARNING!

Danger of injury due to incorrect clamping of the work piece!

Incorrect work piece clamping may lead to the ejection of the work piece and result in serious injuries.

Under dimensioned (tolerance) parts can lead to incorrect clamping!

- Check the unmachined work pieces at random on dimensional accuracy.

Too low supply pressure can lead to the reduction of clamping force!

Too high supply pressure can lead to damage of the components of the clamping device!

- Check and adjust, if necessary, the supply pressure regularly.
- Do random checks of the unmachined work pieces on dimensional accuracy.

Missing changing parts

WARNING!

Danger of injury due to missing changing parts!

When operating the clamping device without changing parts [segmented clamping bushing, clamping heads, work piece end-stops] there is a higher danger of crushing injuries due to the stroke of movable components of the clamping device.

- The clamping process may not be initiated without assembled segmented clamping bushing and/or work piece end-stop.

Parts with sharp edges

WARNING!

Risk of injury!

When screwing in individual components such as for example work piece end-stops, threaded adapters and similar devices that are equipped with an external thread or wear caused by burrs, there is risk of cutting.

- The operation must be done only by qualified personnel.
- Wearing of gloves / [PSA] is required!

CAUTION!

Risk of injury!

A special use-dependent or job-based design can result in variations in the clamping strokes and thus the clamping force.

- The notes on the associated clamping situations or product drawing must always be observed

2.6 Further warnings

WARNING!

Risk of injury!

Never reach for the clamping device while the spindle is rotating. Before starting to work on the mandrel, make sure the machine spindle cannot be put in motion.

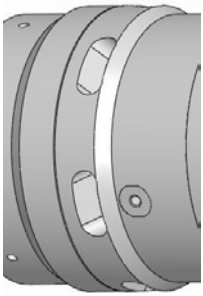


Fig. 1

CAUTION!

Risk of injury through slots and / or holes!

The clamping device can be provided with large slots and/or holes [e.g. chips drain holes].

- **Never** reach into the slots and/or holes, either during assembly / disassembly as well as during machining.

WARNING!

Risk of injury!

Falling down of the clamping device or its parts can cause severe bruises and fractures.

The dead weight of the clamping device or its parts can lead to high physical stress.

WARNING!

Risk of injury!

By repeated reworking or wear and tear of the clamping surfaces sharp edges and burrs may appear and lead to severe cutting damages.

WARNING!

Risk of injury!

Missing o-rings or seals may cause severe injuries!

Due to missing / fallen out O-rings and seals compressed air or hydraulic fluids which are under high pressure may expel!

- Make sure that all O-rings / seals for the hydraulic / pneumatic connections are available and undamaged!
- If necessary lubricate them before assembly and/or during service.

Risk of injury!

Leaking [sprayed out] hydraulic oil can cause serious injury.

- Make sure that all O-rings / seals for the hydraulic and/or pneumatic connections are available and undamaged

WARNING!

Damage of clamping device!

The clamping device may be released exclusively in the standing condition!

2.7 Clamping force

The achieved clamping force can vary due to the maintenance condition of the clamping device [state of lubrication and degree of contamination] [see chapter »Maintenance«].

The clamping force must be checked at regular intervals. This requires the use of static clamping force measuring devices.

CAUTION!

Damages due to excessive draw and compressive force!

An excessive draw force and/or compressive force may damage the clamping device.

- The max. draw force and compressive force may not be exceeded.

2.8 Screws

Moving parts

WARNING!

Danger of injury due to screws and stud screws being accelerated out of the device!!

Screws and stud screws radially attached to the product can be accelerated out of the device and cause severe injuries.

- At the product radially mounted screws and stud screws which were loosened for assembly and maintenance must be re-tightened with the correct tightening torque!
  The tightening torque is given at the product itself, near the screw or threaded pin, and/or given in chapter »Bolt torque«.
- All screws or stud screws that are not marked with a tightening torque specification are tightened with the prescribed tightening torque and locked [medium-strength bonding] in the factory and should only be unscrewed after consultation with the manufacturer. If in doubt you must contact the manufacturer immediately do determine the subsequent procedure.

2.9 Functionality

NOTICE!

With high contamination of the clamping device the functionality is no longer guaranteed.

- The cleaning and maintenance intervals must be observed.

2.10 Environmental protection

NOTE!

Environmental hazard due to incorrect handling!

Incorrect handling of environmentally hazardous substances, particularly improper disposal, can cause significant environmental damage.

- Always comply with the instructions cited below
- If environmentally harmful substances should inadvertently get into the environment, initiate suitable measures immediately. If in doubt notify the responsible municipal authority about the damage.

The following environmentally harmful substances are used:

Lubricants

Lubricants like greases and oils can contain toxic substances. Ensure that they do not get into the environment.

The device must be disposed of by a specialized disposal company.

To achieve trouble-free operational performance of the clamping device only use HAINBUCH lubricants. See the appendix for reference addresses.

3 Technical data

3.1 General Information

Size	Variant	Weight [[kg]clamping device	Weight spindle flange [kg]	Weight clamping unit [kg]	Dimensions clamping unit [ø x length in mm]	Spindle flange connection [ø in mm]	Speed max. [rpm]	C.amping force max. kN]
32	Combi pull-back	10	6	4	ø 106 x 99,5	KK4, KK5 KK6, KK8 IP 100	8000	70
	Combi deadlength	10	5,5	4,5	ø 162 x 100,5	KK4 KK5 KK6 IP 110 IP 130 IP 140	8000	70
	Modular	12,5	6	6,5	ø 106 x 77	KK4 KK5 KK6 IP 115	8000	70
42	Combi pull-back	12	5,5	6,5	ø 131 x 103,5	KK4, KK5, KK6 IP 100 IP 110 IP 115 IP 120 IP 140	7000	80
	Combi deadlength	14	4	10	ø 162 x 101,5	KK4, KK5 KK6 IP 100, IP 108 IP 110, IP 120 IP 140, IP 170	7000	80
	Modular	11	5,5	5,5	ø 131 x 83,5	KK4, KK5, KK6 IP 115 IP 120 IP 145 IP 170	7000	80

KK = short taper size, IP = inner fit dimensions, AP = outer fit dimensions

Size	Variant	Weight [[kg]clamping device	Weight spindle flange [kg]	Weight clamping unit [kg]	Dimensions clamping unit [ø x length in mm]	Spindle flange connection [ø in mm]	Speed max. [rpm]	C.amping force max. kN]
52	Combi pull-back	11,5	5,5	6	ø 131 x 103,5	KK4, KK5 KK6, KK8 IP 120 IP 140	7000	94
	Combi deadlength	13	5	8	ø 162 x 101,5	KK4, KK5 KK6 IP 100 IP 120 IP 140 IP 170	7000	94
	Modular	11	5,5	5,5	ø 131 x 83,5	KK5 KK6 IP 115 IP 120 IP 140	7000	94
65	Combi pull-back	13	4,5	8,5	ø 148 x 111	KK4, KK5 KK6, KK8 IP 120 IP 140 IP 170 IP 185 IP 220	6000	105
	Combi deadlength	16	6	10	ø 165 x 116,5	KK4, KK5 KK6 AP 130 IP 110 IP 120 IP 140 IP 170	6000	105
	Modular	12	4,5	7,5	ø148 x 102,5	KK5, KK6 KK8 IP 120 IP 140 IP 170 IP 220	6000	105

KK = short taper size, IP = inner fit dimensions, AP = outer fit dimensions

Size	Variant	Weight [[kg]clamping device	Weight spindle flange [kg]	Weight clamping unit [kg]	Dimensions clamping unit [ø x length in mm]	Spindle flange connection [ø in mm]	Speed max. [rpm]	C.amping force max. kN]
80	Combi pull-back	16	6	10	ø 165 x 111,5	KK4, KK5 KK6, KK8 KK11 IP 140 IP 170 IP 220	5500	115
	Combi deadlength	20	7	13	ø 179 x 120,5	KK5, KK6 KK8, KK11 IP 140 IP 170 IP 220	5500	115
	Modular	14	6	8	ø 165 x 102	KK6 KK8 KK11 IP 140 IP 170 IP 220	5500	115
100	Combi pull-back	33,5	12,5	21	ø 219 x 128,5	KK4, KK5 KK6, KK8 KK11 IP 140 IP 170 IP 220	5000	150
	Combi deadlength	35	12	23	ø 220 x 145	KK5, KK6 KK8, KK11 IP 170 IP 220	5000	150
	Modular	14	6	8	ø 165 x 102	KK6 KK8 KK11 IP 140 IP 170 IP 220	5000	150

KK = short taper size, IP = inner fit dimensions, AP = outer fit dimensions

Size	Variant	Weight [[kg]clamping device	Weight spindle flange [kg]	Weight clamping unit [kg]	Dimensions clamping unit [ø x length in mm]	Spindle flange connection [ø in mm]	Speed max. [rpm]	C.amping force max. kN]
120	Combi pull-back	42,5	15	27	ø 239 x 139	KK6, KK8 KK11	3200	165
	Combi deadlength	51	17	34	ø 154 x 148	KK6, KK8, KK11	3200	165
	Modular	38	15	23	ø 154 x 148	KK8 KK11	3200	165
125	Combi pull-back	62	25	37	ø 264 x 154	KK6, KK8 IP 220	3200	165
	Combi deadlength	63	121,5	41,5	ø 274 x 158	KK6, KK8, IP 170 IP 220	3200	165
	Modular	52	19	33	ø 264 x 144	KK8 KK11 IP 220	3200	165
140	Combi pull-back	54	18	36	ø 260 x 152	KK6, KK8, KK11	3200	235
160	Combi pull-back	64	21	43	ø 290 x 152	KK6, KK8, KK11, IP 220	3200	3200

KK = short taper size, IP = inner fit dimensions, AP = outer fit dimensions

WARNING!

Risk of injury!

Using false technical data can lead to serious personal injury and property damage.

- The technical data [label on the product, assembly drawing] must be observed and may not be modified by the operator!

3.2 Clamping force diagram

In the diagrams, the effects of friction and the clamping diameter are included.

NOTE!

The measured values for the radial clamping force F_{rad} may not leave the permitted area. Under optimal conditions, the values for F_{rad} are below the top, in bad conditions above the lower limit.

- If the measured clamping forces are outside the allowed range, the maintenance is mandatory to perform. After servicing, the clamping forces have to be re-examined.
- If the clamping force even after the maintenance is not in the permitted area please contact the manufacturer.

Example for size 42/52:

With an axial force F_{ax} of 25 kN the radial clamping force F_{rad} is, depending on the maintenance state of the clamping device, in the range between 22 kN and 66 kN; it must not be smaller than 22 kN or higher than 66 kN.

3.2.1 Clamping force diagram – size 32

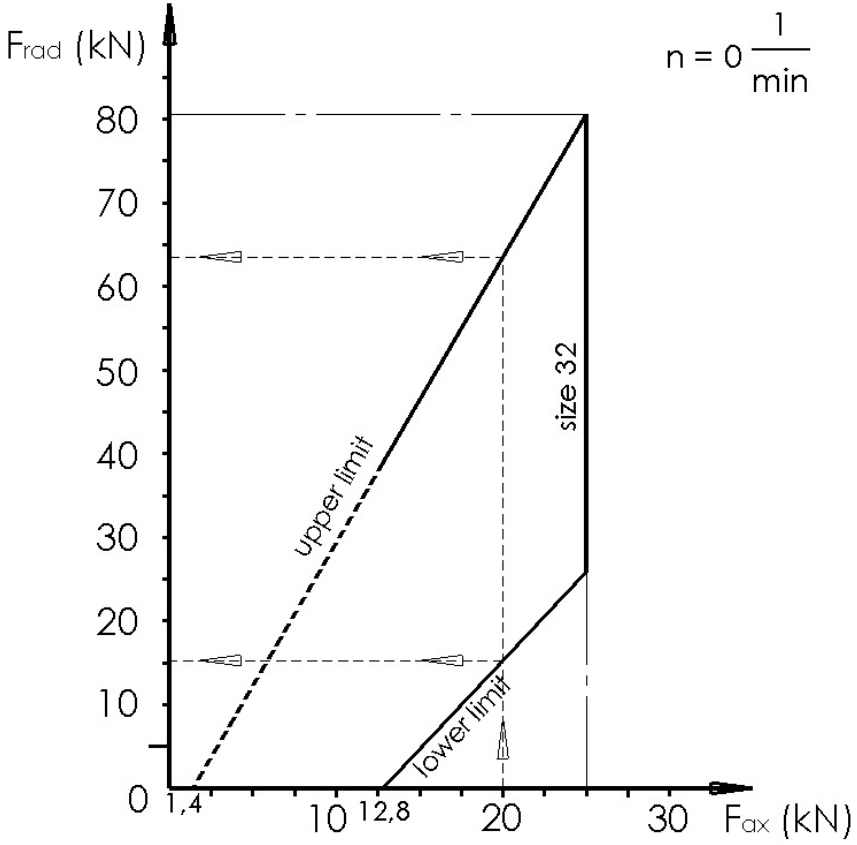


Fig. 2

3.2.2 Clamping force diagram – size 42/52

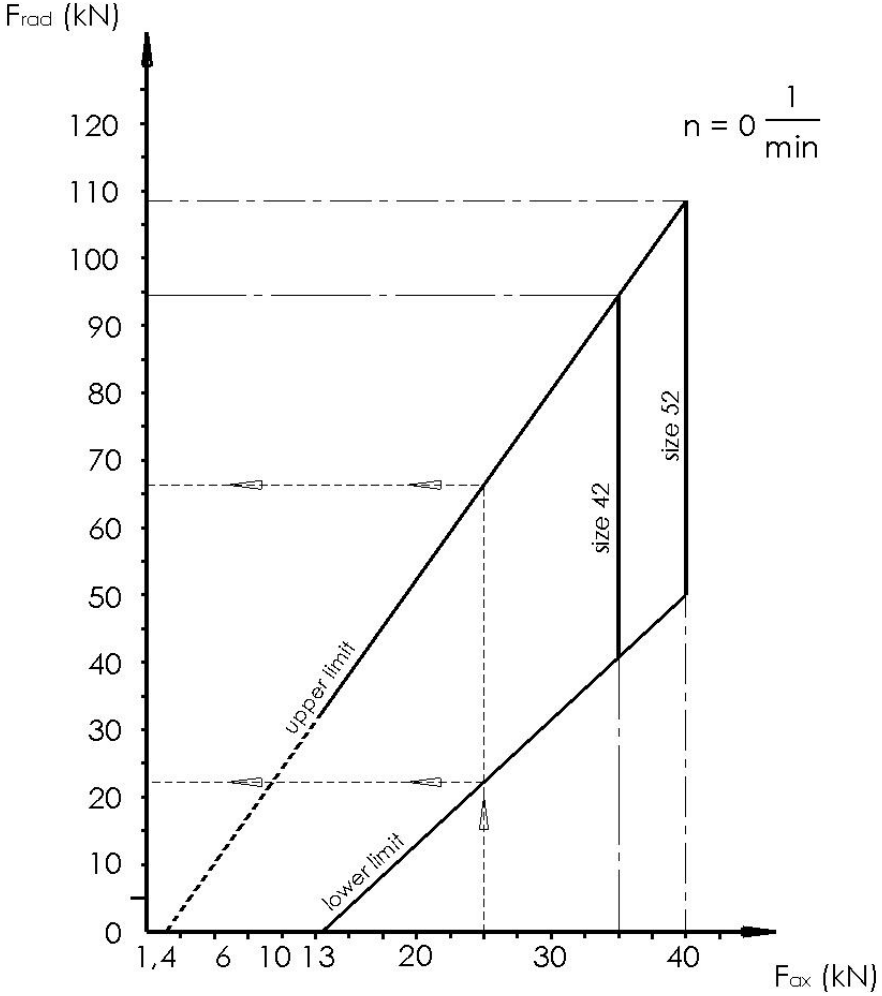


Fig. 3

3.2.3 Clamping force diagram – size 65/80

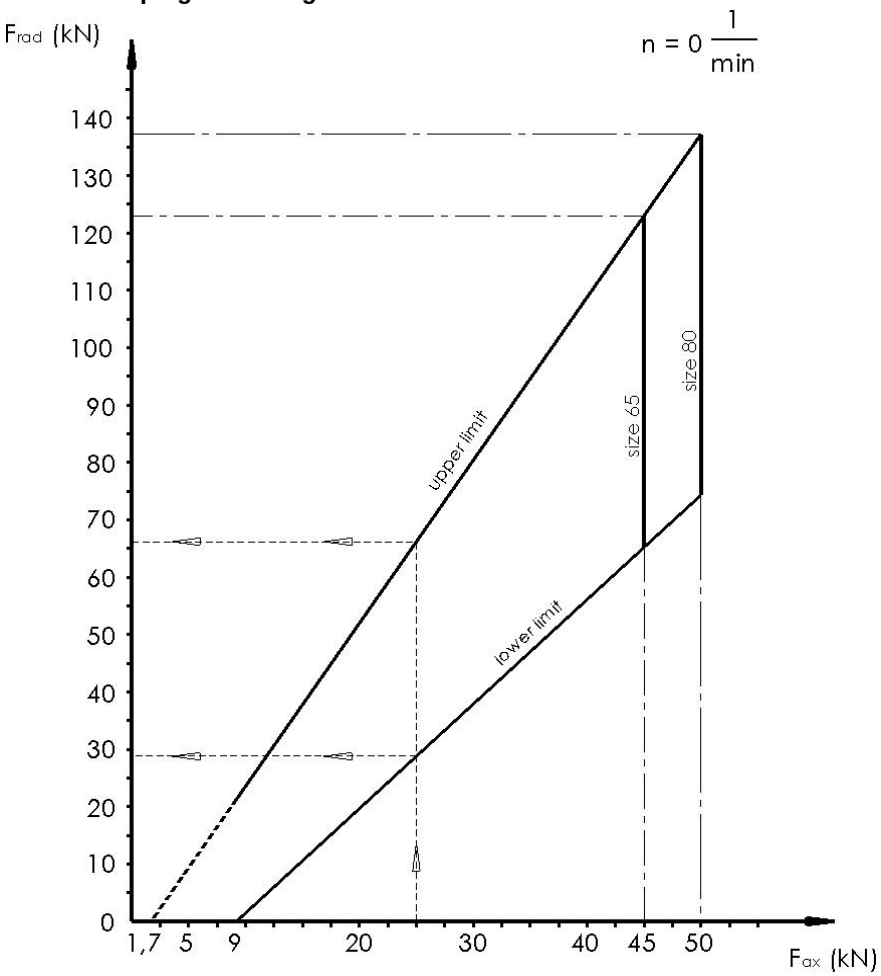


Fig. 4

3.2.4 Clamping force diagram – size 100/125

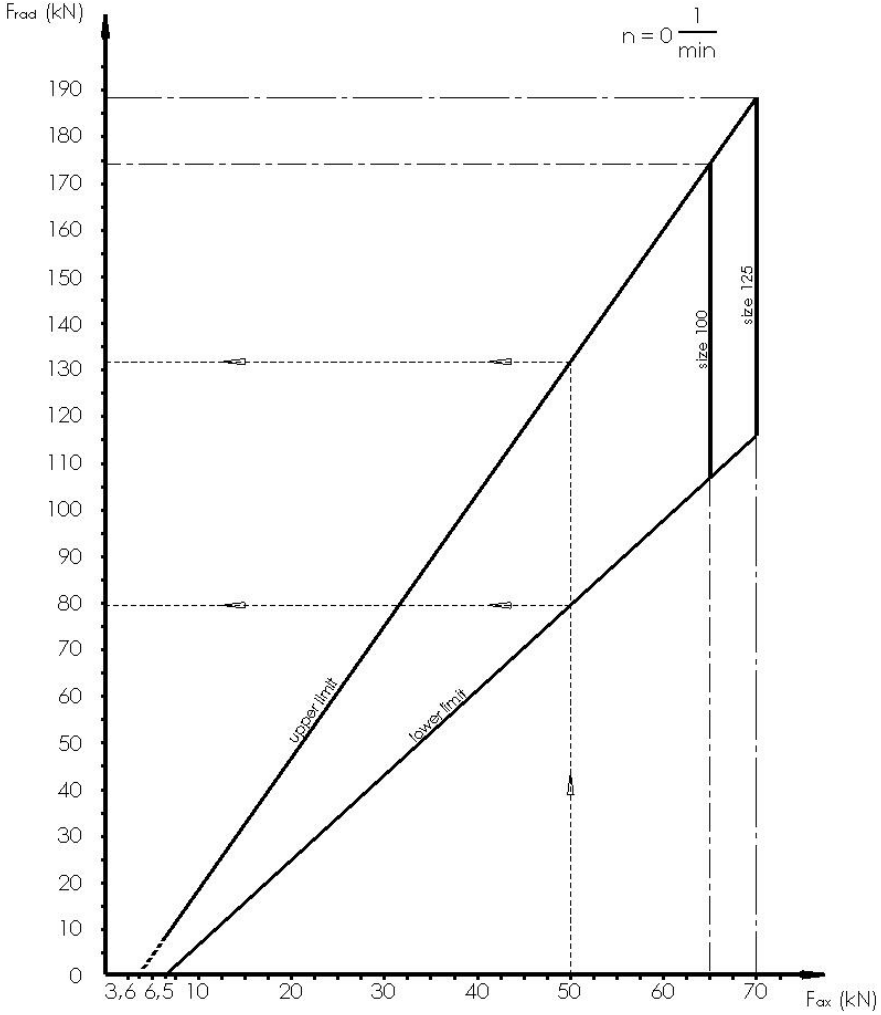


Fig. 5

3.2.5 Clamping force diagram – size 140/160

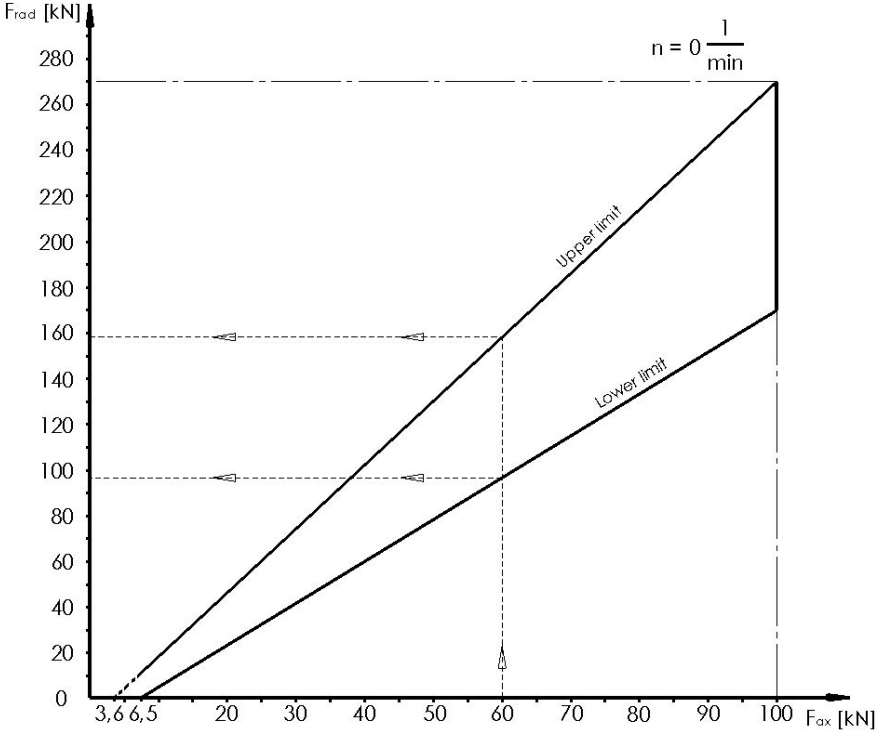


Fig. 6

3.3 Operating conditions

Environment	**Specification**	**Value**	**Unit**
	Temperature range	15 - 65	°C
Mechanical actuating	In each possible operating condition the maximum draw force and compressive force may not be exceeded!		

3.4 Power specifications

NOTE!

Material damage if the power specifications do not agree!

If the power specifications of clamping device, machine adapter and machine do not agree, severe damage extending to total damage can occur.

- Only operate clamping devices and adapters in machines with the same power specifications.

Information on maximum clamping force and draw tube force is provided on the clamping device and the adapter.

3.5 Check

Static test	Used coefficient: **1.25**

3.6 Dimensional sheet

Dimension sheets for the respective product can be requested from HAINBUCH.

3.7 Type designation

Fig. 7

The type designation is on the product and includes the following information:

1 ID no. [marked with the # symbol]
2 Maximum speed [rpm]
3 Maximum clamping force [kN]

4 Structure and function

4.1 Overview and brief description of the SPANNTOP [nova] combi pull-back

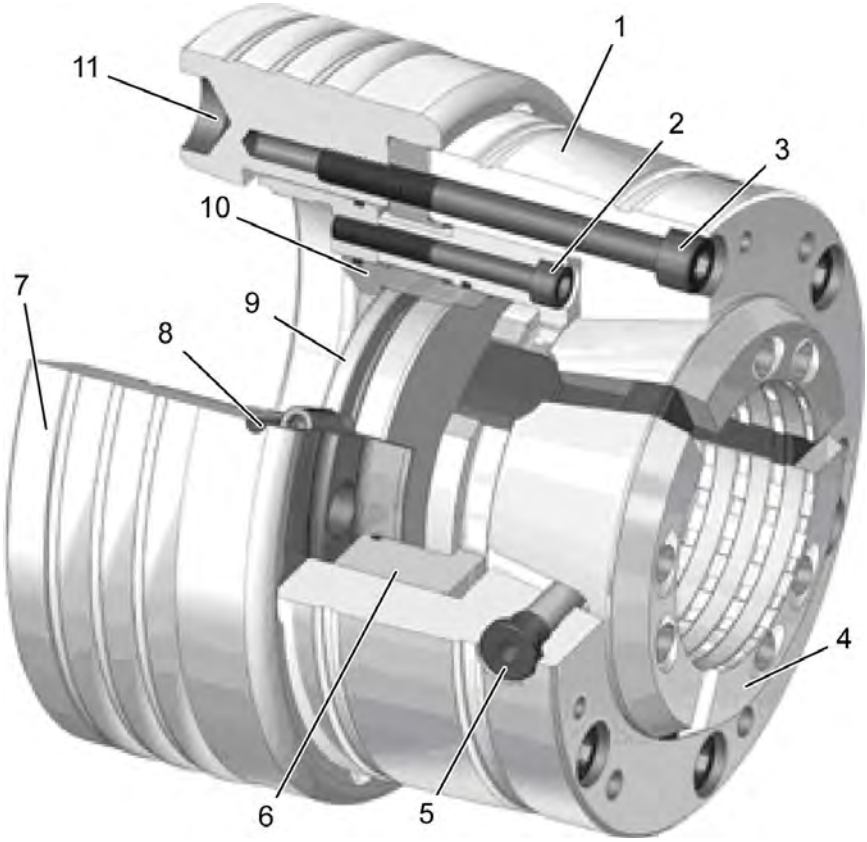


Fig. 8

1. Clamping unit
2. Cylindrical screw – coupling
3. Cylindrical screw – clamping unit
4. Clamping head [optional]
5. Clamping screw – clamping head
6. Coupling
7. Spindle flange
8. Clamping screw [3 pc.]
9. Base end-stop [optional]
10. Draw tube adapter
11. Positioning bore

Brief description

The SPANNTOP [nova] combi pull-back is a through-bore chuck for bar work and it can also be used as an end-stop chuck. When used as an end-stop chuck the base end-stop included in the scope of delivery is screwed into the chuck.

Due to the axial draw tube force that is produced by the draw tube component the work piece is pulled firmly onto the fixed end-stop. The rigidity of the entire clamping device thus achieved makes it possible to also provide stable clamping for work pieces with an extremely short clamping length.

The spindle flange of the clamping device is mounted on the machine spindle. Then the clamping unit with the draw tube adapter, including threaded adapter [optional], is screwed onto the draw tube. After checking concentricity and face run the clamping head is inserted.

The work pieces that will be machined are now clamped into the clamping head.

4.2 Overview and brief description of the SPANNTOP [nova] combi deadlength

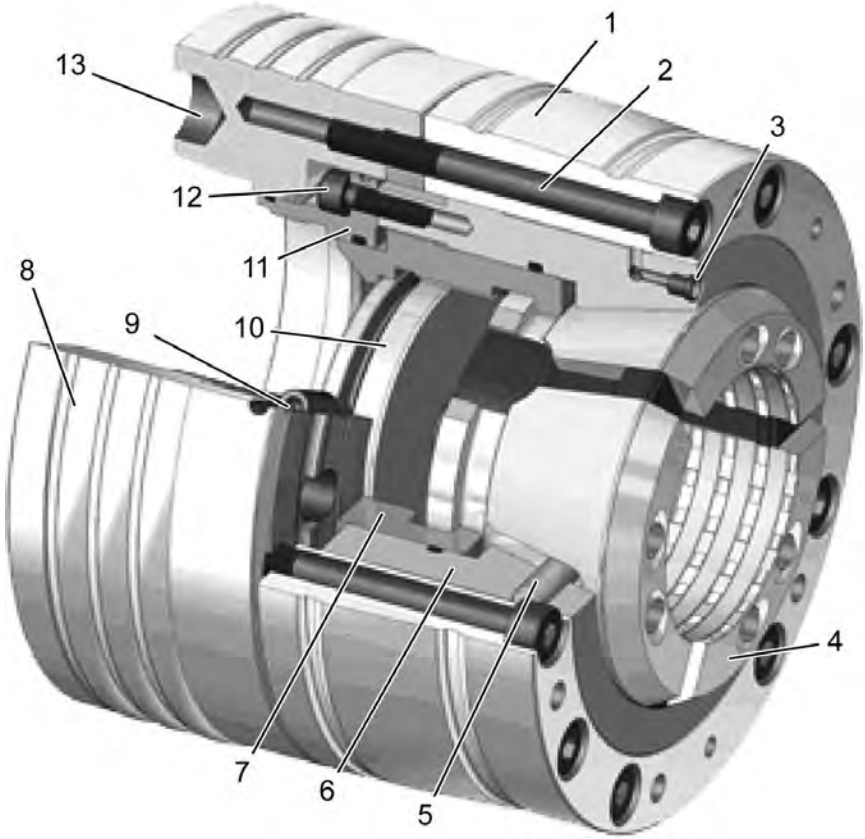


Fig. 9

1. Clamping unit
2. Cylindrical screw - clamping unit
3. Lubricating nipple
4. Clamping head [optional]
5. Locating pin
6. Guard bushing
7. Centering disc
8. Spindle flange
9. Clamping screw [3 pc.]
10. Base end-stop
11. Flange adapter
12. Cylindrical screw - coupling
13. Positioning bore

Brief description

The SPANNTOP [nova] combi deadlength is a through-bore chuck for bar work and it can also be used as an end-stop chuck. When used as an end-stop chuck the base end-stop included in the scope of delivery is screwed into the chuck.

Due to the axial fixed clamping head, shoulders that are short to clamp can be machined, and so can long work pieces that must be machined in sections and moved forward several times.

With the SPANNTOP [nova] combi deadlength clamping device you can grip without axial stress on the work piece.

The spindle flange of the clamping device is mounted on the machine spindle. Then the clamping unit with the draw tube adapter, including threaded adapter [optional], is screwed onto the draw tube. After checking concentricity and face run the clamping head is inserted.

The work pieces that will be machined are now clamped into the clamping head.

4.3 Overview and brief description of the SPANNTOP [nova] modular

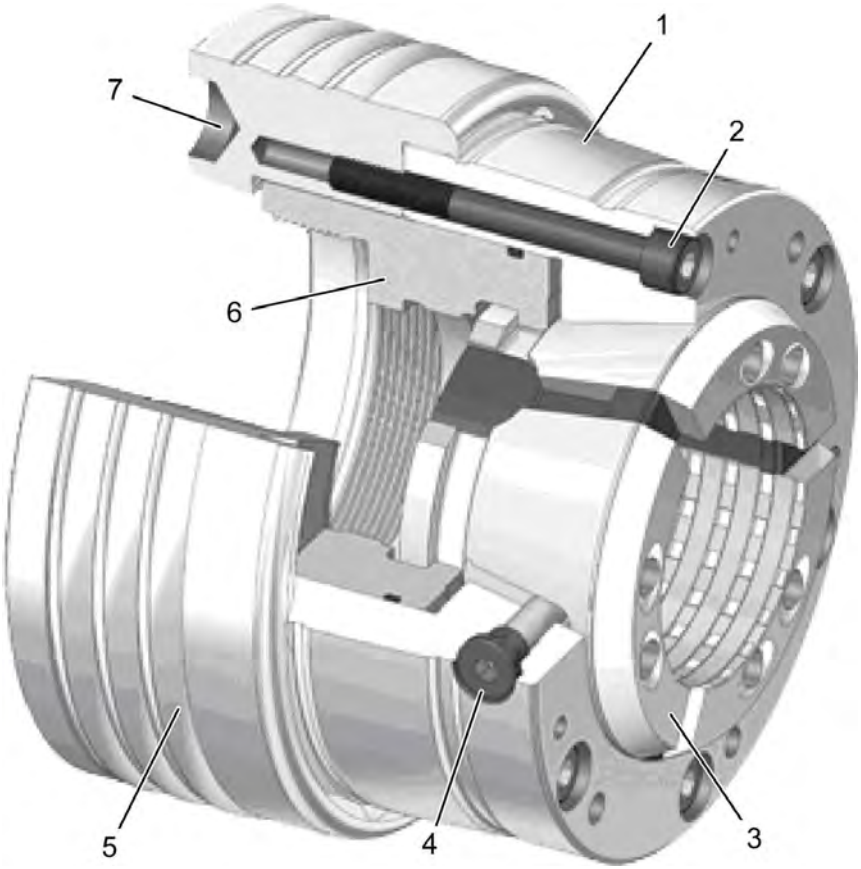


Fig. 10

1. Clamping element reception
2. Clamping screw [3 pc.]
3. Clamping head [optional]
4. Clamping screw – clamping head
5. Spindle flange
6. SPANNTOP coupling
7. Positioning bore

Brief description

The SPANNTOP [nova] modular is a through-bore chuck for bar work.

This means that additional rigidity of the entire clamping device is achieved.

The spindle flange of the clamping device is mounted on the machine spindle. Then the clamping unit with the draw tube adapter, including threaded adapter [optional], is screwed onto the draw tube. After checking concentricity and face run the clamping head is inserted.

The work pieces that will be machined are now clamped into the clamping head.

4.4 Optional Accessories

The accessories described here are not included in the scope of delivery.

Specially developed segmented clamping bushings match to the respective maximum RPM are available for each clamping device. Trouble-free and precise function of HAINBUCH clamping devices is only ensured when using original HAINBUCH segmented clamping bushings.

Lubricating grease and grease gun are required for cleaning and preservation of the clamping device. The lubricating grease is also specially matched for protection of the vulcanized segments of the segmented clamping bushings and increase their service life and elasticity by a significant factor.

4.4.1 Reducing coupling

Fig. 11

A reducing coupling is available for reduction of a SPANNTOP nova modular clamping device size 52 to size 42.

The reducing coupling can be ordered from HAINBUCH.

4.4.2 Assembly wrench

Fig. 12

An assembly wrench is required for assembly with the reducing coupling.

The assembly wrench can be ordered from HAINBUCH.

4.4.3 Changing fixture

Fig. 13

Manual changing fixture

The pins of the changing fixture are inserted in the matching holes in the clamping head. The changing fixture is tensioned via hand force. The clamping head is firmly clamped in the changing fixture and can be inserted into the mounted clamping device with the aid of the changing fixture.

Fig. 14

Pneumatic changing fixture

The pins of the changing fixture are inserted in the matching holes in the clamping head. The changing fixture is tensioned via compressed air. The clamping head is firmly clamped in the changing fixture and can be inserted into the mounted clamping device with the aid of the changing fixture.

4.4.4 Clamping head

Fig. 15

The clamping heads are used to accommodate the work piece that will be machined. They consists of hard steel and rubber segments that are connected via a vulcanizing process.

Depending on the requirements of the work piece there are clamping heads in different sizes and with different profiles and bores.

4.4.5 Work piece end-stop

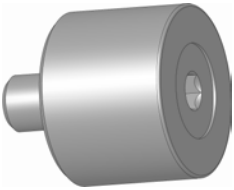


Fig. 16

The work piece end-stop is manufactured with a end-stop dimension according to the customers request. In combination with the clamping head and the chuck it provides a functional unit.

4.4.6 Grease

Fig. 17

The universal grease for chuck and mandrel lubrication is supplied in a 1000g can. The order number for the universal grease is 2085/0003; it can be ordered from HAINBUCH.

4.4.7 Grease gun

Fig. 18

The grease gun is filled with universal grease, which is pressed into the clamping device. The grease gun has a pointed mouthpiece. The order number for the grease gun is 2086/0004; it can be ordered from HAINBUCH.

5 Transporting, packaging and storing

5.1 Safety instructions for transporting

Unbalanced package

WARNING!

Danger of falling due to an unbalanced package

Packed goods can have an unbalanced package. If attached incorrectly the package can tip and cause life-threatening injuries.

- Note the markings on the packages.
- Attach the crane hook in such a manner that it is located above the center of gravity.
- Carefully lift and see if the load tilts. If necessary change the attachment.

Transport!

- For transport always use a suitable clamping means / crane.
- Make sure that a rolling / falling of the clamping device is not possible.

5.2 Symbols on the packaging

Fragile

Identifies packages with fragile or sensitive contents.

Handle the packed goods with care; do not allow them to fall, and do not subject them to impact.

Protect from moisture

Keep packed goods dry and protected against moisture.

5.3 Transport inspection

Check delivery immediately upon receipt to ensure that delivery is complete and to identify any transport damage.

Proceed as follows it there is apparent external damage:

- Do not accept the delivery, or only accept it with reservation.
- Note the extend of transport damage on the transport documents or on the transport company's delivery ticket.
- Submit a complaint.

Report any defect as soon as it is detected. Claims for damage compensation can only be enforced during the applicable periods for giving notice of lack of conformity.

5.4 Unpacking and inner-company transportation

From about weight 15 kg there are threaded holes in the circumference of the clamping device. Lifting eye bolts can be screwed into these threaded holes.

For transporting with transport trolley the clamping device must be positioned in standing condition. Make sure that a non-slip pad has been laid.

To safely lift the clamping device out of the package it must be hooked into a crane depending on the weight.

All tools and accessories which are not in scope of delivery are marked as optional in the operating instructions.

- Two people are required for this task.
- Special tools required:
  - Crane from weight more than 15 kg
  - Lifting eye bolts

Fig. 19

1. Screw lifting eye bolt into the radial thread in the circumference of the clamping device.
2. Hook the load-handling equipment into the lifting eye bolt.
3. Use a crane to carefully lift the clamping device out of the transport packaging and put it down on a stable, level substrate.

5.5 Packaging

About the packaging

Individual packages are packed according to the expected transport conditions. Environmentally-friendly materials have been used exclusively for the packaging.

Packaging should protect the specific components from transport damage, corrosion, and other damage until installation. Therefore do not destroy the packaging, remove it just before installation.

The packed goods are sealed in foil airtight and packed in cartons. See the »Technical Data« section for the specific weight of the respective sizes.

Handling packaging materials

Dispose of packaging materials in accordance with the respectively valid statutory regulations and local guidelines.

NOTE!

Improper disposal causes environmental damage!

Packaging materials are valuable raw materials and in many cases they can be reused, or they can be effectively treated and recycled.

- Dispose of packaging materials in an environmentally responsible manner.
- Comply with locally applicable disposal guidelines. If necessary commission a specialized company to dispose of packaging.

5.6 Storing

Under certain circumstances instructions for storage and subsequent storage are affixed to the packages that extend beyond the requirements cited here.
Comply with these instructions accordingly.

Storage of packages

Only store packages under the following conditions:

- Do not store outdoors.
- Store in a dry and dust-free location
- Do not expose to aggressive media
- Protect from direct sunlight
- Avoid mechanical vibration
- Storage temperature: 15 bis 35 °C
- Relative humidity: max. 60 %
- For storage periods longer than 3 months:
  - Check the general condition of all parts and the packaging at regular intervals.
  - Touch up or re-apply anti-corrosion agents as needed

Subsequent storage of the clamping device

Only re-store the clamping device under the following conditions:

- Thoroughly clean the clamping device prior to subsequent storage [see section »Cleaning«]
- Thoroughly oil and grease the clamping device. [see section »Cleaning«]
- Store the clamping device in airtight foil
- The clamping device must be stored securely in position. If this is not guaranteed, use a suitable container for the clamping device or equip the shelf with a circumferential securing edge.

6 Assembly

WARNING!

During the initial installation of the clamping device severe injuries may occur.

- The initial installation must be done only by qualified personnel.
- All screws remaining in the clamping must be tightened firmly.
- All tools and keys must be removed after installation.

6.1 Preparations

The total weight of the clamping device, consisting of spindle flange and clamping unit, depends on the size and can be as much as 40 kg.

The individual weight of the spindle flange can be as much as 20 kg, and the clamping unit can weigh up to 23 kg [see section »Technical data«].

Depending on the weight, to safely lift the clamping device out of the package and position it in the machine it must be hooked into a crane.

WARNING!

Danger of injury due to falling components!

When mounting components can fall and cause severe injury and material damage.

- Two people are always required for this task.
- From weight 15 kg use a crane.

6.1.1 Preparing SPANNTOP nova combi deadlength and SPANNTOP nova combi pull-back clamping devices

Special tools required:

- Allen wrench
- Oil stone
- Crane and eye bolts from weight 15 kg

Fig. 20

1. Loosen all cylindrical screws [1] in the clamping device element reception [3] with an allen wrench [2] and remove them completely.

Fig. 21

2. Lift the clamping element reception [1] off of the spindle flange.
3. Wipe off the mating surfaces on the spindle flange and clamping unit with a soft, lint-free cloth and remove all oil and grease residues.
4. Hone the mating surfaces on the spindle flange with an oil stone.

6.1.2 Preparing the SPANNTOP nova modular clamping device

Special tools required:

- Allen wrench
- Oil stone
- Crane and eye bolts from weight 15 kg

Fig. 22

1. Loosen all cylindrical screws [1] in the clamping device element reception [3] with an allen wrench [2] and remove them completely.

Fig. 23

2. Lift the clamping element reception [1] off of the spindle flange.

Fig. 24

3. Take the coupling [3] out of the spindle flange [1]. In this process ensure that the torsional safety pin [2] is kept safe and is not damaged.
4. Clean the mating surfaces on the spindle flange, drawtube adapter, coupling, and clamping unit with a soft, lint-free cloth and remove all oil and grease residues.
5. Hone the mating surfaces on the spindle flange with an oil stone.

6.2 Installation

WARNING!

Danger of injury due to unintentional start-up of the tool spindle!

Unexpected start up of the tool spindle can cause severe injury.

- Prior to switching on automatic mode close all protective doors or hoods that are present on the machine tool.
- Unscrew all eye bolts from the clamping device and remove them from the interior of the machine.
- Only run the machine in set-up mode or jog mode.
- Always remove immediately all the tools and wrenches from the clamping device after use.

WARNING!

Risk of injury!

By operating the clamping device without changing parts [clamping head, segmented clamping bushing, work piece end-stops ...] there is an increased risk of crushing injuries by the stroke of the moving components of the clamping device.

By uncontrolled discharge of the clamping process [e.g. by incorrect installation of the energy supply or faulty programming] there is an increased danger.

WARNING!

Risk of injury!

Bending in the working area of the machine can cause severe head injuries!

CAUTION!

Risk of injury!

Unexpected start up of the tool spindle can cause severe injury.

- Make sure that the system is pressure-free and that a restart of the machine can be excluded!

Risk of injury!

Contamination of the mechanism can influence/reduce the stroke, thus the clamping force is reduced and thus, the work piece is not properly tightened and can be thrown out.

- Clean the product regularly [see chapter »Maintenance and service«].

Risk of injury!

If the clamping pressure is too low clamped work piece may be thrown out.

If the clamping pressure is too high severe damages of the components of the clamping device may occur the throwing out of the work piece.

- Before operation set the operation pressure back to operation level.
- The operating pressure should be checked and adjusted regularly!
- The dimension of the work pieces should be checked regularly [clamping-ø]!

Transport!

- For transport always use a suitable clamping means / crane.
- Make sure that a rolling / falling of the clamping device is not possible.

WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work are when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

6.2.1 Installing the spindle flange

NOTE!

Material damage due to the wrong tightening torque of the cylindrical screws in the spindle flange!

The tightening torque of the cylindrical screws is prescribed by the spindle or machine manufacturer. Incorrect tightening torque of the cylindrical screws in the spindle flange can cause significant material damage on the clamping device and on the machine.

- Only tighten the cylindrical screws of the spindle with the torque prescribed by the spindle or machine manufacturer.

Two people are required for this task.

Special tools required:

- Crane from weight 15 kg
- Allen wrench

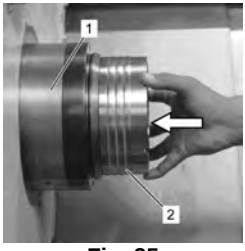


Fig. 25

1. Put the machine in set up mode.
2. Wipe off the mating surfaces of the machine spindle with a soft, lint-free cloth and remove all oil and grease residues.
3. Lift the spindle flange [2] into the machine by hand or with the aid of a crane and place it on the machine spindle [1].

Fig. 26

In this process position the spindle flange on the machine spindle with the aid of the bores [1].

Fig. 27

1. Screw all cylindrical screws [1] into the spindle flange with an allen wrench and hand tighten in a cross pattern.

NOTE!

Material damage is possible if the eye bolts are left in the spindle flange!

Eye bolts that are left in the clamping device can significantly damage or even destroy lathe, clamping device, and work piece.

- Always remove eye bolts immediately after mounting the clamping device in the lathe.

6.2.2 Checking and adjusting the face run and concentricity of the spindle flange

NOTE!

Material damage due to insufficient face run and concentricity!

Due to insufficient face run and concentricity work pieces can be damaged during processing.

- After each mounting check, and if necessary readjust, the face run and concentricity of the clamping device.

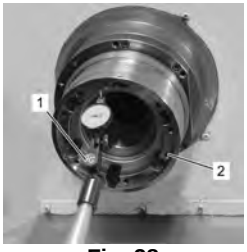


Fig. 28

Checking face run

Special tools required:

- Dial indicator

1. Place the dial indicator [1] for face run on the outer edge [2] of the mating surface.

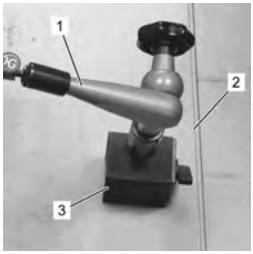


Fig. 29

2. Place the magnetic base [3] of the dial indicator [1] on the inside of the machine [2].

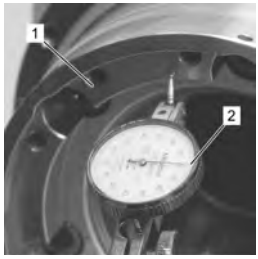


Fig. 30

3. Adjust the spindle [1] in such a manner that the dial indicator [2] shows the value »0«.

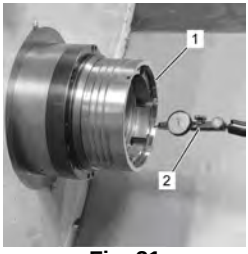


Fig. 31

Checking concentricity

Special tools required:

- Dial indicator
- Torque wrench

1. Place the magnetic base of the dial indicator on the inside of the machine.
2. Place the dial indicator [2] for concentricity on the inside edge [1] of the spindle flange.

Fig. 32

3. Adjust the spindle flange [1] in such a manner that the dial indicator shows the value »0« [2].

Fig. 33

4. Tighten all cylindrical screws [1] with a torque wrench [2] in a cross pattern [see section »Screw tightening torque«].

For exact adjustment, if necessary loosen the cylindrical screws several turns and retighten in a cross pattern.

5. Wipe off the mating surfaces of the spindle flange with a soft, lint-free cloth and remove all oil and grease residues.

6.2.3 Installing the SPANNTOP nova combi deadlength or SPANNTOP nova combi pull-back clamping unit size 32-120

Special tools required:

- Allen wrench
- Crane and eye bolts from weight 15 kg

Fig. 34

1. Put the machine tool in set up mode.
2. Remove all tools from the interior of the machine.
3. Set the clamping pressure of the machine tool on the lowest setting.
4. Move the drawtube of the machine tool into the front stop position.
5. Screw the drawtube adapter [2] into the clamping unit [1].

WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work are when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

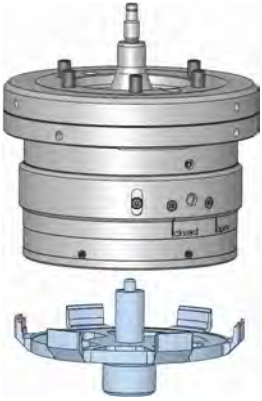


Fig. 35

6. Vertically suspended assembly:
   - Place the assembly plate [illustration is symbolic] on the tool turret.
   - Use a crane to place the clamping unit with drawtube adapter on the assembly plate.
   - In jog mode, move the spindle slowly and carefully downward until it touches the clamping unit.
   - Screw the clamping unit clockwise into the machine spindle to the end-stop. If required, slowly and carefully move the machine spindle further downward. When screwing in the drawtube adapter, ensure that it does not tilt.

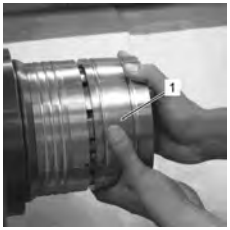


Fig. 36

7. Horizontal or vertical standing assembly:
   - Use a crane to lift the clamping unit with drawtube adapter into the machine and place it on the drawtube of the machine tool.
   - Screw the drawtube adapter with the clamping unit onto the drawtube of the machine tool to the end. In this process ensure that the drawtube adapter does not tilt.

Do not tighten the drawtube adapter with clamping unit.

Fig. 37

8. Turn back the clamping unit until the arrows of the balance marks are aligned.

The through-bore of the clamping element reception and the threaded bores of the spindle flange should now be aligned as well.

Depending on the machine type it may be necessary to comply with a given screw-in depth of the draw tube adapter.
- This dimension is pointed out in the assembly drawing of the clamping device.

WARNING!

Crushing danger due to machine movement!

It may not always be avoided that in the assembly of the clamping unit there is a gap between spindle flange and clamping unit.

Therefor the reasons are the position of the drawtube as well as the request to maximum usable work space.

Through this gap there is a higher risk of crushing that can lead to severe injuries.

- Never reach into the gap between spindle flange and clamping unit!

Fig. 38

9. Carefully move the drawtube of the machine tool back in jog mode, until the clamping unit is completely inserted in the spindle flange.
10. Screw all cylindrical screws 1] into the clamping unit with an allen wrench and hand tighten in a cross pattern.

6.2.4 Installing the SPANNTOP nova combi deadlength or SPANNTOP nova combi pull-back clamping unit size 125-160

Special tools required:

- Allen wrench
- Crane and eye bolts from weight 15 kg

Fig. 39

1. Put the machine tool in set up mode.
2. Remove all tools from the interior of the machine.
3. Set the clamping pressure of the machine tool on the lowest setting.
4. Move the drawtube of the machine tool into the front stop position.
5. Screw the drawtube adapter [2] into the clamping unit [1].

WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work are when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

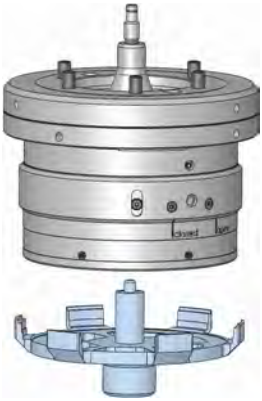


Fig. 40

6. Vertically suspended assembly:
   - Place the assembly plate [illustration is symbolic] on the tool turret.
   - Use a crane to place the clamping unit with drawtube adapter on the assembly plate.
   - In jog mode, move the spindle slowly and carefully downward until it touches the clamping unit.

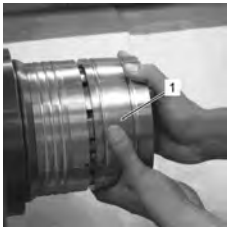


Fig. 41

7. Horizontal or vertical standing assembly:
   - Use a crane to lift the clamping unit with drawtube adapter into the machine and place it on the drawtube of the machine tool.

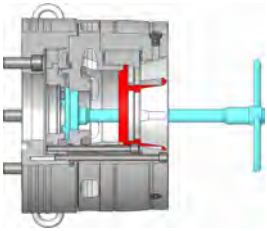


Fig. 42

8. Insert wrench [if necessary through the assembly plate] into the clamping unit, so that the wrench engages in the grooves of the adapter.
9. Use the wrench to screw the adapter onto the drawtube of the machine, via the adapter thread, to the stop, without tightening. In this process ensure that the drawtube adapter does not tilt.

Do not tighten the drawtube adapter with clamping unit.

Fig. 43

10. Turn back the clamping unit until the arrows of the balance marks are aligned.

The through-bore of the clamping element reception and the threaded bores of the spindle flange should now be aligned as well.

Depending on the machine type it may be necessary to comply with a given screw-in depth of the draw tube adapter.

- This dimension is pointed out in the assembly drawing of the clamping device.

WARNING!

Crushing danger due to machine movement!

It may not always be avoided that in the assembly of the clamping unit there is a gap between spindle flange and clamping unit.

Therefor the reasons are the position of the drawtube as well as the request to maximum usable work space.

Through this gap there is a higher risk of crushing that can lead to severe injuries.

- Never reach into the gap between spindle flange and clamping unit!

Fig. 44

11. Carefully move the drawtube of the machine tool back in jog mode, until the clamping unit is completely inserted in the spindle flange.
12. Screw all cylindrical screws [1] into the clamping unit with an allen wrench and hand tighten in a cross pattern.

6.2.5 Installing the SPANNTOP nova modular

Two people are required for this task.

Special tools required:

- Allen wrench
- Crane and eye bolts from weight 15 kg

Fig. 45

1. Put the machine tool in set up mode.
2. Remove all tools from the interior of the machine.
3. Set the clamping pressure of the machine tool on the lowest setting.
4. Move the drawtube of the machine tool into the front stop position.
5. Screw the drawtube adapter [1] into the coupling [2].
6. Lift the coupling with drawtube adapter into the machine and place it on the drawtube of the machine tool.

Fig. 46

7. Screw the drawtube adapter with coupling onto the drawtube of the machine tool to the end. In this process ensure that the drawtube adapter does not tilt.

   Do not tighten the drawtube adapter with clamping unit.

8. Turn the coupling back until the coupling groove [2] is aligned flush with the [1] groove of the spindle flange.

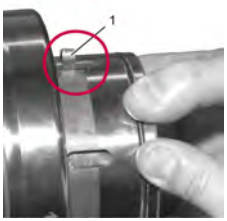


Fig. 47

9. Insert the torsional safety element [1] vertically into the coupling groove and slide it into the groove of the spindle flange [1].

   Coupling and spindle flange are now fixed in place. To prevent the torsional safety element from tilting, carefully pull the coupling again approximately 1 cm horizontally out of the spindle flange to the front.

   In this process ensure that the drawtube adapter does not tilt.

Fig. 48

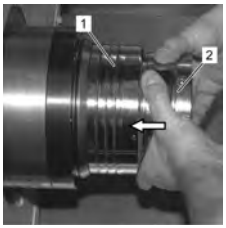


Fig. 49

10. Place the clamping unit [2] on the coupling and slide it into the spindle flange [1].

Fig. 50

11. Turn back the clamping unit until the arrows of the balance marks are aligned.

The through-bore of the clamping element reception and the threaded bores of the spindle flange should now be aligned as well.

12. Carefully move the drawtube of the machine tool back in jog mode, until the clamping unit is completely inserted in the spindle flange.

Fig. 51

13. Screw all cylindrical screws [1] into the clamping unit with an allen wrench and hand tighten in a cross pattern.

6.2.6 Checking and adjusting the face run and concentricity of the clamping unit

NOTE!

Material damage due to insufficient face run and concentricity!

Due to insufficient face run and concentricity work pieces can be damaged during processing.

- After each mounting check, and if necessary readjust, the face run and concentricity of the clamping device.

Checking face run

Special tools required:

- Dial indicator
- Plastic tip hammer

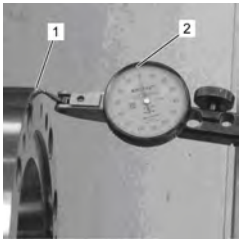


Fig. 52

1. Place the magnetic base of the dial indicator on the inside of the machine.
2. Place the dial indicator [1] for face run on the face [2] of the clamping unit.
3. Use the plastic tip hammer to carefully knock the clamping unit into position.

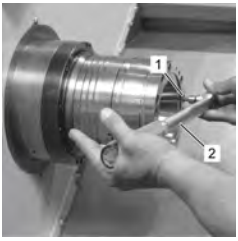


Fig. 53

4. Tighten the cylindrical screws [1] with a torque wrench [2] in a cross pattern [see section »Screw tightening torque«].

   For exact adjustment, if necessary loosen the cylindrical screws several turns and retighten in a cross pattern.

5. Wipe off the taper reception in the clamping unit with a soft, lint-free cloth and remove all oil and grease residues.

Checking concentricity

Special tools required:

- Dial indicator
- Plastic tip hammer
- Torque wrench

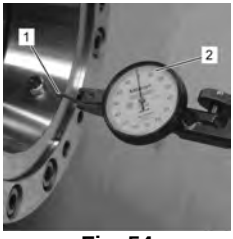


Fig. 54

1. Place the magnetic base of the dial indicator on the inside of the machine.
2. Place the dial indicator [2] for concentricity on the clamping taper [1].
3. Adjust the clamping unit in such a manner that the dial indicator shows the value »0«.

   For exact adjustment, if necessary loosen the cylindrical screws several turns and retighten in a cross pattern.

6.2.7 Assembly of the clamping device to an interface

The clamping device can bei provided with an interface:

1. centroteX / centroteX-V
2. capteX B / capteX D

The assembly of the clamping unit to one of the named interfaces is described in the corresponding manual of the interface.

6.2.8 SPANNTOP [nova] modular – reduction of the size

The SPANNTOP [nova], size 52 can be reduced to size 42.

Special tools required:

- Assembly wrench

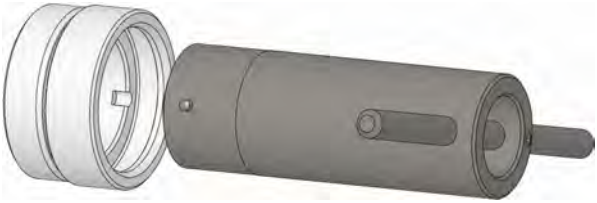


Fig. 55

The following steps are required for reduction of the size:

1. If necessary remove the reducing sleeve installed by the customer.
2. Insert the assembly wrench into the reducing coupling. To do this, guide the pins of the assembly wrench into the grooves of the reducing coupling.
3. Now use the assembly wrench to screw the reducing coupling into the clamping device and firmly tighten it.
4. Remove the assembly wrench from the clamping device.

The reducing coupling is installed.

6.2.9 Installing the base end-stop

If the SPANNTOP nova combi deadlength or SPANNTOP nova combi pull-back clamping devices will be used as end-stop chuck the base end-stop must be mounted.

The SPANNTOP nova modular clamping device can only be used as a through-bore chuck and thus has no base end-stop.

Special tools required:

- Allen wrench
- Mounting bolt or suitable cylindrical screw

Fig. 56

1. Take the clamping head out of the taper.
2. Unscrew the clamping screws [see section »Disassembling the base end-stop«].
3. Screw the mounting bolt [1] clockwise into the threaded bore [2] in the center of the base end-stop [3].

Screw the mounting bolt into the base end-stop so that the polished side of the base end-stop is pointing up.

Fig. 57

4. Use the mounting bolt to insert the base end-stop into the clamping device in such a manner that the lateral fixing pin [1] of the base end-stop is aligned flush with the fixing groove [1] in the centering disk.

NOTE!

Material damage is possible if the clamping screws are tightened too forcefully!

Tightening the clamping screws too forcefully can damage or destroy them. The base end-stop can no longer be clamped in.

- Tighten the clamping screws by hand.
- Do not screw in beyond the resistance.

Fig. 58

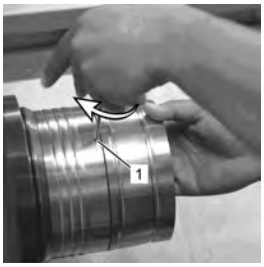


Fig. 59

5. Tighten all clamping screws [1] of the base end-stop in the spindle flange clockwise with an allen wrench. The base end-stop is now secured.

Fig. 60

6. Unscrew the mounting bolt [1] counterclockwise.

6.2.10 Assembly of the workpiece end-stop

Special tools required:

- Allen wrench

Fig. 61

1. Put the workpiece end-stop through the assembled clamping head into the clamping device.

NOTE!

Material damage is possible if the mounting screws are tightened too forcefully!

Tightening the mounting screws too forcefully can damage or destroy them.

- Tighten the mounting screws by hand.
- Do not screw in beyond the resistance.

2. Screw in and firmly tighten mounting screws.

WARNING!

Risk of injury!

Tools and gages that are thrown out of the machine can cause injury.

- Remove all tools and gages from the working area of the machine before the machine is started up.

Risk of injury!

If the clamping pressure is too low clamped work piece may be thrown out.

If the clamping pressure is too high severe damages of the components of the clamping device may occur the throwing out of the work piece.

- Before operation set the operation pressure back to operation level.
- The operating pressure should be checked and adjusted regularly!

WARNING!

Slipping danger due to escaping hydraulic fluid!

Escaping (sprayed out) hydraulic oil can cause serious injuries.

- Make sure that all o-rings/seals for the hydraulic / pneumatic interfaces are available and in undamaged condition.
- Make sure that the clamping device is empty and leakage of hydraulic fluid is avoided.

6.2.11 Assemble / disassemble the clamping head

For changing in the clamping head move the coupling of the clamping device to front end position.

Depending on the model of the clamping head the handling of the changing fixture is easier or more difficult.

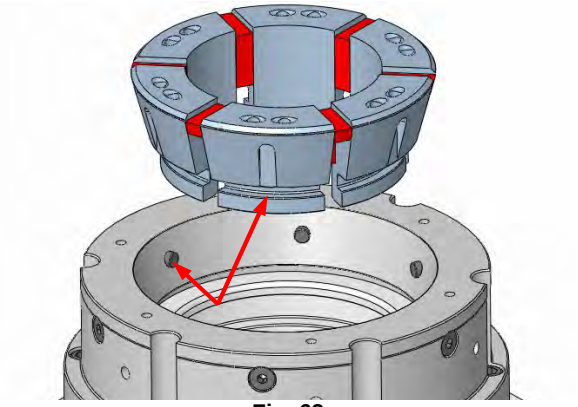


Fig. 62

WARNING!

Danger of violent pressure to hands and fingers!

- During operation never reach into the coupling or slot area of the clamping head nor in the changing fixture.
- Only run the machine in set-up mode or jog mode.
- Before working at the installed clamping device make sure that starting of the machine is impossible.

6.3 Workpiece

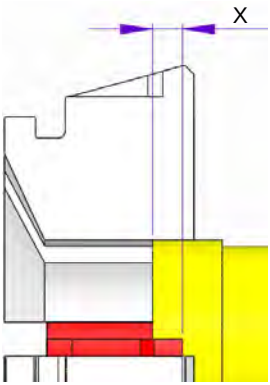


Fig. 63

WARNING!

Risk of injury due to thrown out parts!

During clamping of the work piece and the processing parts can be thrown and cause severe injuries and property damage.

- Check the clamping diameter of the work piece.
- Tighten only work pieces that meet the dimensional requirements, in this regard pay attention to the maximum utilization of the clamping reserve/reserve stroke, see chapter 2.5 »Faulty workpiece clamping«.
- Only clamp workpieces with a minimum clamping depth »X« **≥ 3 mm**.
  As in this case only the area of the taper without front nose extension applies.
- To clamp extremely long workpieces, in addition use a tailstock/steady rest for support.

CAUTION

Risk of injury!

When placing the work piece:

- Make sure that the hands / fingers may not be clamped between the flange and the work piece!

6.4 Inspections

NOTE!

Material damage due to damaged clamping devices!

A damaged, incomplete, or unbalanced clamping device can significantly damage or even destroy the machine tool and the work piece.

- Only install undamaged, complete, and precisely balanced clamping devices.
- If in doubt contact the manufacturer.

Ensure the following points prior to each installation and start-up of the clamping device:

- All cylindrical screws of the clamping device must be present and tightened with the proper tightening torque.
- The balance screws of the clamping device must all be present and undamaged.

All rubber segments must be intact; this means that they are neither torn, nor are they porous at any point.

- All edges and bearing surfaces are intact; this means that they are neither broken nor do they show any signs of wear.
- The set speed of the machine tool should not exceed the maximum permissible speed of the clamping device.
- The maximum draw tube force specified on the perimeter of the clamping device must not be exceeded.
- The clamping pressure of the machine must be sufficiently high.
- All mounting tools must be removed from the interior of the machine.
- Clamping device and work piece must be compatible –check the clamping diameter regularly.
- The work piece must be clamped into the clamping device with sufficient work piece tension.
- Do a pressure loss test and a measurement of clamping force.

6.5 Control of the stroke position

WARNING!

Crushing danger from moving parts!

Crushing danger from moving parts during controlling the stroke position!

Gaps, caused while controlling the stroke position, can cause severe injury.

- Only do the controlling of the stroke position with assembled changing parts.
- Only run the machine in set-up mode or jog mode.
- Do not reach into moving parts or handle moving parts during operation.
- Note the gap dimensions of moving parts.
- Wearing of gloves / [PSA] is required!

6.6 Activities after production is concluded

1. Move the clamping device into unclamped position.
2. Switch off the machine tool and safeguard it from being switched on again.
3. Open the protective door or hood.
4. Clean the clamping device and a possibly mounted adaptation clamping device and adapter of chips and production residues using a soft, lint-free cloth and oil them lightly.
5. Close the protective door or hood.

7 Disassembly

If there is break in production that lasts longer than 3 days, the clamping device must be disassembled and properly stored in accordance with the manufacturer's specifications [see section »Transport, packaging, storage«].

Prior to disassembling:

- Put the machine in set up mode.
- Remove fuels and auxiliary materials, as well as residual processing materials and dispose of these items in an environmentally-responsible manner.

7.1 Safety

Safeguarding against restart

DANGER!

Life-threatening danger if restarted without authorization

When disassembling there is danger of the energy supply being switched on inadvertently. This poses a life-threatening hazard for persons in the danger zone.

- Prior to starting the tasks switch off all energy supplies and safeguard them from being switched on again.

WARNING!

Danger of injury due to falling components!

When mounting components can fall and cause severe injury and material damage.

- Two people are always required for this task.
- Use a crane.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work are when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

Transport!

- For transport always use a suitable clamping means / crane.
- Make sure that a rolling / falling of the clamping device is not possible.

7.2 Disassembling the base end-stop

If the SPANNTOP nova combi deadlength or SPANNTOP nova combi pull-back clamping device will be used as through-bore chuck the base end-stop must be disassembled.

The SPANNTOP nova modular clamping device can only be used as a through-bore chuck and thus has no base end-stop.

Special tools required:

- Allen wrench
- Mounting bolt or suitable cylindrical screw

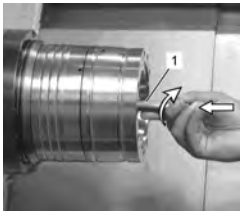


Fig. 64

1. Take the clamping head out of the taper of the clamping element reception.
2. Insert the mounting bolt [1] and screw it clockwise into the threaded bore in the center of the base end-stop.

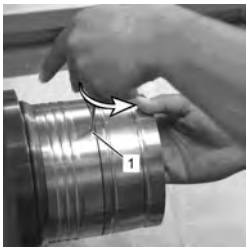


Fig. 65

NOTE!

Material damage if the clamping screws are loosened incorrectly!

Tightening the clamping screws too forcefully can damage or destroy them. The base end-stop can no longer be clamped in.

- Loosen the clamping screws by hand.
- Do not unscrew beyond the resistance.

3. Carefully loosen all clamping screws [1] with an allen wrench counterclockwise until resistance is tangible.
   The base end-stop is now loosened.

Fig. 66

4. Carefully pull out the base end-stop [1] straight from the front.

7.3 Disassembly of the workpiece end-stop

Special tool required:

- Allen wrench

Fig. 67

1. Loosen and remove the mounting screws.
2. Remove the workpiece end-stop through the assembled clamping head out of the clamping device.

7.4 Disassembling the clamping unit SPANNTOP [nova] combi deadlength and SPANNTOP [nova] combi pull-back size 32-120

- From weight 15 kg the task requires two people, or use a crane.
- Special tools required:
  - Use load-handling equipment from weight 15 kg
  - Allen wrench

1. Put the machine tool in set up mode.
2. Disassemble the base end-stop [see section »Disassembling the base end-stop«].
3. From weight 15 kg mount the eye bolts [see section »Unpacking and inner-company transport«].

WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work are when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

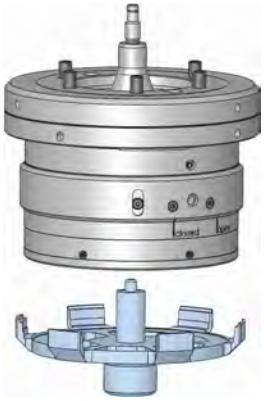


Fig. 68

4. Vertically suspended disassembly:
   - Place the assembly plate [illustration is symbolic] on the tool turret.
   - In jog mode, move the spindle slowly and carefully downward until the clamping unit touches the assembly plate.
   - Loosen and remove the cylindrical screws using an Allen wrench.
   - Turn the clamping unit counterclockwise so that it comes out of the machine spindle. If required, slowly and carefully move the machine spindle upward.
   - When the clamping unit is completely disassembled, move the machine spindle completely upward.
   - Use a crane to take the clamping unit with drawtube adapter off of the assembly plate.
   - Remove the assembly plate from the tool turret.

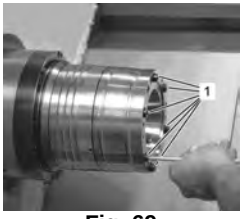


Fig. 69

5. Horizontal or vertical standing disassembly:
   - Loosen and remove the cylindrical screws by using an allen wrench.

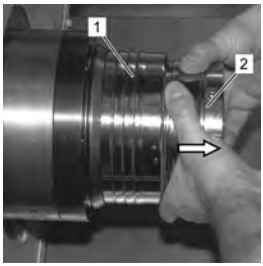


Fig. 70

- Move the drawtube of the machine tool into the front stop position.
- Schrauben Sie die Spanneinheit mit Zugrohradapter vom Zugrohr der Maschine ab. Darauf achten, dass der Zugrohradapter nicht verkantet.

Fig. 71

4. Lift the clamping unit with the drawtube adapter [if necessary by using a crane] out of the machine and place it safely.

7.5 Disassembling the clamping unit SPANNTOP [nova] combi deadlength and SPANNTOP [nova] combi pull-back size 125-160

Two people are required for this task.

Special tools required:

- Allen wrench
- Crane and eye bolts

1. Put the machine tool in set up mode.
2. Disassemble the base end-stop [see section »Disassembling the base end-stop«].
3. From weight 15 kg mount the eye bolts [see section »Unpacking and inner-company transport«].

WARNING!

Danger of injury due to vertical suspended spindle!

Bending into the machine work are when assembling overhead can cause severe head injuries.

- Secure components prior to overhead assembly.
- For assembly on a vertically suspended spindle always use a suitable mounting aid.

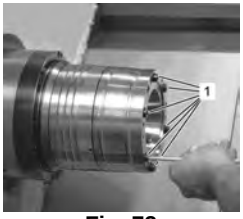


Fig. 72

4. Loosen all cylindrical screws [1] with an allen wrench and unscrew them from the clamping unit.

Fig. 73

5. Vertically suspended disassembly:
   - Place the assembly plate [illustration is symbolic] on the tool turret.
   - In jog mode, move the spindle slowly and carefully downward until it touches the clamping unit.

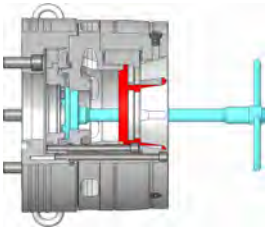


Fig. 74

6. Insert wrench [if necessary through the assembly plate] into the clamping unit, so that the wrench engages in the grooves of the adapter.
7. Use the wrench to unscrew the adapter from the drawtube of the machine, via the adapter thread. In this process ensure that the drawtube adapter does not tilt.

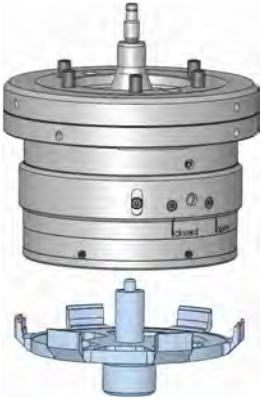


Fig. 75

8. Vertically suspended disassembly:
   - Move the machine spindle completely upward.
   - Use a crane to take the clamping unit off of the assembly plate and set it down at a safe place.
   - Remove the assembly plate from the tool turret.

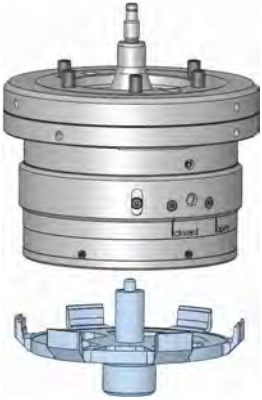


Fig. 76

9. Horizontal or vertical standing disassembly:
   - Use a crane to take the clamping unit off of the assembly plate and set it down at a safe place.

The clamping unit is disassembled.

7.6 Disassembling the SPANNTOP nova modular clamping unit

From weight 15 kg the task requires two people, or use a crane.

Special tools required:

- Use load-handling equipment from weight 15 kg
- Allen wrench

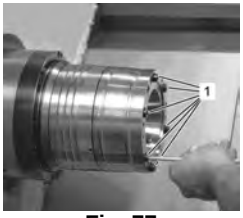


Fig. 77

1. Put the machine tool in set up mode.
2. Disassemble the base end-stop [see section »Disassembling the base end-stop«].
3. From weight 15 kg mount the eye bolts [see section »Unpacking and inner-company transport«].
4. Loosen all cylindrical screws [1] with an allen wrench and unscrew them from the clamping unit.

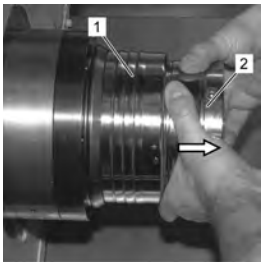


Fig. 78

5. Move the drawtube of the machine tool into the front stop position.
6. Pull the clamping element reception [2] off of the spindle flange [1] and lift it out of the machine.

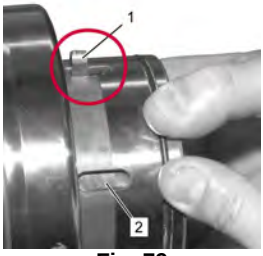


Fig. 79

7. Remove the torsional safety element [1].
8. Unscrew the coupling with drawtube adapter [2]. In this process ensure that the torsional safety element is kept safe and is not damaged.

7.7 Disassembling the spindle flange

From weight 15 kg the task requires two people, or use a crane.

Special tools required:

- Torque wrench
- Allen wrench
- Crane from weight 15 kg
- Eye bolts

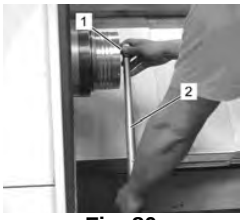


Fig. 80

1. Put the machine tool in set up mode.
2. If necessary mount the eye bolts [see section »Unpacking and inner-company transport«].
3. Loosen all cylindrical screws [1] with a torque wrench [2] in a cross pattern [see section »Screw tightening torque«].
4. Remove all cylindrical screws from the spindle flange.

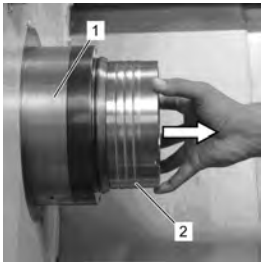


Fig. 81

5. Take the spindle flange [2] down from the machine spindle [1] by hand or with the aid of load-handling equipment and lift it out of the machine tool.
6. Wipe off the mating surfaces of the machine spindle with a soft, lint-free cloth and remove all oil and grease residues.
7. Remove all tools from the interior of the machine.

7.8 Subsequent storage of the clamping device

The clamping device must be cleaned and treated with corrosion protection for subsequent storage [see section »Cleaning«].

NOTE!

The storage conditions are specified in the section »Transport, packaging and storage«.

7.9 Disposal

If a return or disposal agreement has not been concluded, then recycle disassembled components.

CAUTION!

Risk of injury due to leaking fluids!

Hydraulically or pneumatically operated clamping devices may contain residues of liquids. Uncontrolled leakage of fluids can lead to severe injuries.

- Open the pressure relief screw and drain remaining liquid.
- Discard the liquid.

NOTE!

Improper disposal causes environmental damage!

Lubricants and other auxiliary materials are subject to treatment as special waste, and should only be disposed of by approved specialist companies!

NOTE!

Composite materials!

For disposal clamping devices which include composite materials [mineral cast, CFK] must be returned at HAINBUCH!

Local municipal authorities or specialized disposal companies provide information on environmentally-responsible disposal.

8 Maintenance

Environmental protection

Comply with the following instructions for environmental protection when performing maintenance work:

- At all lubricating points where lubricant is applied by hand, remove escaping, used, or excess grease, and dispose of it in accordance with applicable local regulations.
- Collect used oil in suitable containers and dispose of it in accordance with applicable local regulations.

8.1 General

Cleanliness of the appropriate end-stop as well as the guidance diameters are conditions for reaching the concentricity and perpendicularity tolerances. Clean these surfaces with an appropriate cleaner.

CAUTION

Danger of injury due to improper handling of cleaners!

Improper handling of cleaners can cause health impairments.

- Always comply with the safety data sheets and guidelines provided by the manufacturer of the cleaning agent for handling/using the cleaners.

CAUTION

Danger of injury due to loss of clamping force!

Fouling of the clamping device can cause the clamping device to lose considerable clamping force.

- Always comply with the maintenance and cleaning intervals specified in this manual.
- In conjunction with the maintenance intervals, regularly check the maintenance status of the clamping device through clamping force measurements.

Risk of injury!

Slipping while the lubricating with a grease gun can lead to severe cuts!

8.2 Cleaning

NOTE!

Material damage if cleaned with compressed air!

Cleaning the clamping device with compressed air can force metal chips into thread and grooves. This can damage or even destroy the clamping device.

- Never clean the clamping device with compressed air!

- Auxiliary material required:
  - Ester-free, non-polar cleaning agent
  - Soft, lint-free cloth

Fig. 82

1. Disassemble the clamping device [see section »Disassembling the clamping unit«].
2. Clean all the components listed below with cleaning agent and a cloth; remove all oil and grease residues:
   - Spindle flange
   - Clamping unit
   - Taper reception and coupling area
   - Draw tube adapter
   - Threaded adapter [optional]
   - Cylindrical screws
3. For the SPANNTOP [nova] modular, in addition also clean the coupling with torsional safety element with cleaning agent and cloth; remove all oil and grease residues.
   To do this take the torsional safety element out of the coupling groove.

8.3 Preservation

- Special tools required:
  - Universal grease 2085/0003
  - Grease gun
  - Oil stone
  - Soft, lint-free cloth

Fig. 83

1. Disassembling the clamping device [see section » Disassembling the clamping unit«].
2. Hone all the bearing surfaces of the clamping device with an oil stone.
3. For the SPANNTOP [nova] modular, in addition hone all bearing surfaces of the coupling [Fig. 56/1] with an oil stone and apply a thin layer of grease to the torsional safety element. Remove excess grease with a cloth.
4. Lightly grease all cylindrical screws. Remove excess grease with a cloth.
5. Remount the clamping devices. To do this, for the SPANNTOP [nova] combi deadlength and combi pull-back variants, re-insert the clamping unit in the spindle flange.
6. For the SPANNTOP [nova] modular variant first, insert the coupling with the torsional safety element in the spindle flange and then mount the clamping unit.
7. Screw all cylindrical screws into the clamping device again and tighten them hand tight.

! For subsequent storage tightening the cylindrical screws hand tight suffices. This facilitates re-commissioning and protects the cylindrical screws.

Fig. 84

1. Use the lubricating nipples to grease the SPANNTOP [nova] combi deadlength clamping unit with a grease gun and universal grease.
2. Lightly grease all interior and outer surfaces of the clamping device. Remove excess grease with a cloth.
3. Pack the clamping device airtight in foil. Place it on a level, impact-free storage location and safeguard it from falling.

8.4 Use of lubricant

With the usage of lubricant you may only use grease that corresponds to the requirements concerning bond, pressure-stability and solubility in lubricating coolant. In addition no dirt particles may be in the grease; they cause run errors if they come in in-between two mating surfaces.
We recommend for this the following lubricant:

HAINBUCH grease

See optional Accessories

Alternatives:

Lubricant	Manufacturer	Product
Universal grease	MicroGleit	GP 355
	Klüber	QNB 50
	Zeller & Gmelin	DIVINOL SD24440
	Bremer & Leguill	RIVOLTA W.A.P.
Special grease	Klüber	MICROLUBE GL 261

8.5 Maintenance schedule

Maintenance tasks are described in the sections above that are required for optimal and trouble-free operation.

If increased wear is detected during regular inspections, then reduce the required maintenance intervals according to the actual indications of wear.

Contact the manufacturer, [see the service address on the back] if you have questions concerning maintenance tasks and intervals.

Interval	Maintenance task
Daily	Visual inspection and complete cleaning in case of heavy contamination [see section »Cleaning«]
Weekly	Clean the clamping unit [see section »Cleaning«]
	Clean the taper reception and coupling area [see section »Cleaning«]
	Grease the clamping unit [see section »Preservation«]
Every 6 months	Completely disassemble and clean the clamping unit [see section »Cleaning«]

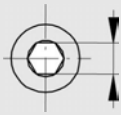
! For proper operation of the coolant feed a prefiltering with duplex filter (mesh size 100 µm, PI 3754] is necessary. The duplex filter is mounted on the coolant cleaning system.

8.6 Bolt torque

Metric ISO thread

The guide values for bolt tightening torque for achieving the highest permissible pre-tension for metric ISO thread are specified in Nm in the table.

- Total friction coefficient μ_{tot} = 0,12

Diameter	[mm]	 [mm]	Torque for screw quality 10.9 [Nm]
M 4	7	3	4
M 5	8	4	7
M 6	10	5	12
M 8	13	6	25
M 10	17	8	50
M 12	19	10	100
M 16	24	14	220
M 20	30	17	400
M 24	36	19	600

The table shows the prescribed values.

Knowledge of the applicable guidelines and configuration criteria are the prerequisites.

9 Trouble shooting

Possible fault causes and the tasks to correct these faults are described in the following section.

If faults occur more frequently, the maintenance intervals must be shortened to correspond to the actual system load.

Contact the manufacturer if there are faults that cannot be corrected by following the instructions below; see the service address on the back of this operating instruction.

9.1 Safety

Trouble shooting

The following always applies:

1. For faults that pose a direct danger for personnel and or property immediately execute the emergency-stop function of the machine.
2. Determine the cause of the fault.
3. If correction of the fault requires work in the danger zone, put the machine in set-up mode.
4. Immediately inform the responsible parties at the installation site of the fault.
5. Depending on the type of fault, either have authorized specialized personnel correct the fault, or correct it yourself.

   The trouble shooting table provided below lists personnel who are authorized to correct the fault.

6. If there is a fault that was not caused by the clamping device the cause of the fault may be in the machine area. See the operating manual for the machine in this regard.

9.2 Trouble shooting table

Fault	Possible cause	Fault correction	Corrected by
Clamping head cannot be replaced	The change gap between the clamping head coupling and work piece end-stop is insufficient.	Rework the work piece end-stop	Specialist
Clamping device does not open or the release stroke is insufficient.	Fouling between the draw mechanism and the clamping unit	Remove the clamping head, move the draw tube back and clean the coupling area [see section »Disassembling the clamping head«].	Specialist
	Dimensional deviation of the draw tube adapter	Check the dimensions of the draw tube adapter and correct them if necessary.	Specialist
Clamping force is too low	Work piece is under-dimensioned	Replace with a suitable clamping head	Specialist
	Insufficient hydraulic pressure on the clamping cylinder	Check the machine-side hydraulic aggregate	Hydraulic specialist
	Defective clamping cylinder or blocked draw tube	Contact the machine manufacturer	Machine manufacturer
	Compression springs fatigued [at permanent tension]	Replace compression springs	Specialist
Eccentric dimensional deviation on the work piece	Concentricity error of the clamping unit	Check the concentricity on the clamping taper and correct it if necessary [see section »Checking and adjusting the face run and concentricity of the clamping unit«].	Specialist
Dimensional deviation on the work piece	Contaminated coupling area	Clean the coupling area of the clamping unit [see section »Cleaning«].	Specialist
	Contaminated clamping taper	Remove the clamping head and clean the clamping taper [see section »Cleaning«].	Specialist

Fault	Possible cause	Fault correction	Corrected by
Formal defect on the work piece	Elastic deformation of feedstock that is subject to formal defects. After machining, the work piece returns to its original form.	Use feedstock with fewer formal defects. Use a clamping head with several sharp teeth in the clamping surface.	Specialist
Marks on the clamping surface	Point or linear work piece clamping	Replace with a clamping head that has a smoother clamping surface	Specialist
	Wrong clamping head type	Replace the clamping head	Specialist
	Excessive dimensional difference between the work piece diameter and the clamping bore	Replace with a clamping head that has a suitable clamping bore	Specialist

9.3 Start-up after corrected fault

After correcting the fault execute the following steps to start up again:

1. Reset the emergency-stop device
2. Acknowledge the fault on the machine tool controller
3. Ensure that no one is in the danger zone
4. Start the machine tool

10 Appendix

10.1 Service Hotline

Order Hotline

Quickly ordered and delivered. A call is all it takes: +49 7144. 907-333

Schedule Hotline

Current status of your order? Just call: +49 7144. 907-222

24h emergency call

Has there been a crash or other technical emergency?
Our experts are at your service around the clock: +49 7144. 907-444

10.2 Representatives

The sales partners and service employees listed below are available for further consultation or support.

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EC Declaration of conformity

EG-Konformitätserklärung im Sinne der EG-Richtlinie 2006/42/EG über Maschinen [Anhang II A] / *EC Declaration of conformity according to EC directive 2006/42/EC on machinery [Annex II A]*

Original-Konformitätserklärung / Translation of original declaration of conformity

Hersteller / *manufacturer*: HAINBUCH GmbH Spannende Technik
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Diese Erklärung bezieht sich nur auf die Maschine in dem Zustand, in dem sie in Verkehr gebracht wurde; vom Endnutzer nachträglich angebrachte Teile und/oder nachträglich vorgenommene Eingriffe bleiben unberücksichtigt. Die Erklärung verliert ihre Gültigkeit, wenn das Produkt ohne Zustimmung umgebaut oder verändert wird.
This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user. The declaration is no more valid, if the product is modified without agreement.
Hiermit erklären wir, dass die nachstehend beschriebene Maschine
Herewith we declare, that the machinery described below

Produktbezeichnung / product denomination:
SPANNTOP [nova] combi pull-back
SPANNTOP [nova] combi deadlength
SPANNTOP [nova] modular

allen einschlägigen Bestimmungen der Maschinenrichtlinie 2006/42/EG entspricht.
is complying with all essential requirements of the Machinery Directive 2006/42/EC.

Angewandte harmonisierte Normen / *Harmonised Standards used*:

- EN ISO 12100:2011-03 — Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze / Safety of Machinery – Basic concepts
- DIN EN 1550:1997 — Sicherheitsanforderungen für die Gestaltung und Konstruktion von Spannfuttern für die Werkstückaufnahme / Safety requirements for the design and construction of work holding chucks

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